

IN THE CLAIMS:

Please amend Claims 71, 75, 79, 82 and 86 as follows. All claims currently pending in this application have been reproduced below.

Claims 1- 70 were previously cancelled.

71. (Currently Amended) A diffractive optical element, which is used for an optical system of an exposure apparatus, said diffractive optical element comprising:

an effective area;

a peripheral area surrounding the effective area; and

a light-shielding member composed of a laminated layer of Cr oxide and Cr disposed on a surface of the peripheral area, ~~wherein said light-shielding member comprises an alignment mark~~

wherein the laminated layer includes an alignment mark for centering the diffractive optical element in an optical barrel.

72. (Cancelled)

73. (Original) An exposure apparatus for exposing a wafer to a pattern of a mask by using said optical system including said diffraction grating optical element according to Claim 71.

74. (Original) A device manufacturing method comprising:

a step of exposing a wafer to a device pattern of a mask by the exposure apparatus according to Claim 73; and

a step of developing the exposed wafer.

75. (Currently Amended) A diffractive optical element, which is used for an optical system of an exposure apparatus, said diffractive optical element comprising:

an effective area;

a peripheral area surrounding the effective area; and

a light-shielding member composed of a material selected from the group consisting of TiC, TiN, ZrC, HfC and HfN, disposed on a surface of the peripheral area,
~~wherein said light-shielding member comprises an alignment mark~~
wherein the material disposed on the surface of the peripheral area includes
an alignment mark for centering the diffractive optical element in an optical barrel.

76. (Cancelled)

77. (Original) An exposure apparatus for exposing a wafer to a pattern of a mask by using said optical system including said diffractive optical element according to Claim 75.

78. (Original) A device manufacturing method comprising:

a step of exposing a wafer to a device pattern of a mask by the exposure apparatus according to Claim 77; and

a step of developing the exposed wafer.

79. (Currently Amended) A diffractive optical element, which is used for an optical system of an exposure apparatus, said diffractive optical element comprising:

an effective area;

a peripheral area surrounding the effective area; and

a light-shielding member composed of an acrylic or epoxy light-shielding ink disposed on a face of the peripheral area, and comprising an alignment mark ~~used when arranging for centering said light-shielding member into said optical system~~ diffractive optical element in an optical barrel, wherein said light-shielding ink is not exposed to an outside of the diffractive optical element.

80. (Original) An exposure apparatus for exposing a wafer to a pattern of a mask by using said optical system including said diffractive optical element according to Claim 79.

81. (Original) A device manufacturing method comprising:

a step of exposing a wafer to a device pattern of a mask by the exposure apparatus according to Claim 80; and

a step of developing the exposed wafer.

82. (Currently Amended) A diffractive optical element, which is used for an optical system of an exposure apparatus, said diffractive optical element comprising:

an effective area;

a peripheral area surrounding the effective area; and

a light-shielding member composed of any one of (i) chromium, aluminum, molybdenum, tantalum and tungsten, (ii) a laminated structure of any one of chromium, aluminum, molybdenum, tantalum or tungsten and any one of chromium oxide, silicon oxide or aluminum oxide, (iii) a compound material of a metal and silicon, and (iv) a compound of any one of molybdenum or tungsten and silicon, silicon, or titanium oxide, disposed on a face of the peripheral area, wherein said light-shielding member comprises an alignment mark for centering the diffractive optical element in an optical barrel.

83. (Original) A diffractive optical element according to Claim 82, wherein a wavelength of light used for the exposure is less than 250 nm.

84. (Original) An exposure apparatus for exposing a wafer to a pattern of a mask by said optical system including said diffractive optical element according to Claim 82.

85. (Original) A device manufacturing method comprising:

a step of exposing a wafer to a device pattern of a mask by the exposure apparatus according to Claim 84; and

a step of developing the exposed wafer.

86. (Currently Amended) A diffractive optical element comprising:
an effective area;
a peripheral area surrounding the effective area; and
a light-shielding member disposed on a surface of the peripheral area,
wherein said light-shielding member comprises an alignment mark for centering the
diffractive optical element in an optical barrel.

87. (Previously Presented) An exposure apparatus for exposing a wafer
to a pattern of a mask by using an optical system including a diffractive optical element
according to Claim 86.

88. (Previously Presented) A device manufacturing method comprising:
a step of exposing a wafer to a device pattern of a mask by using an
exposure apparatus according to Claim 87; and
a step of developing the exposed wafer.--